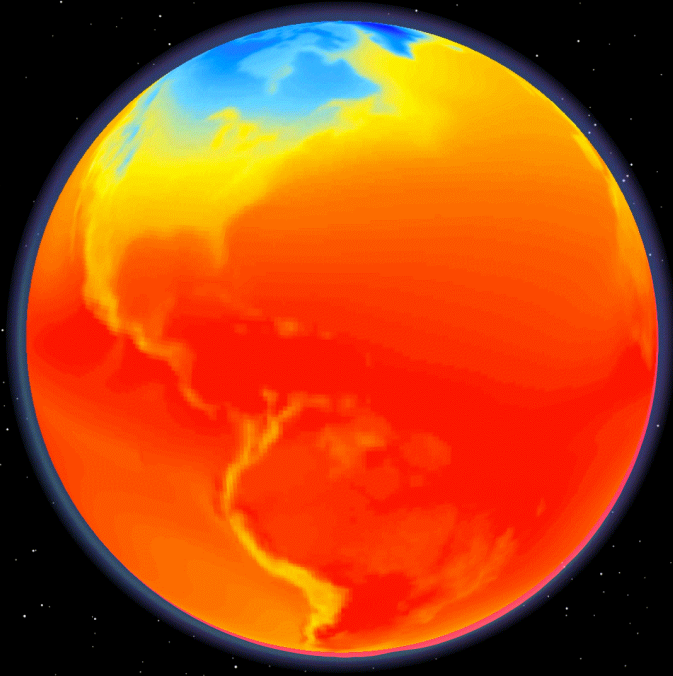
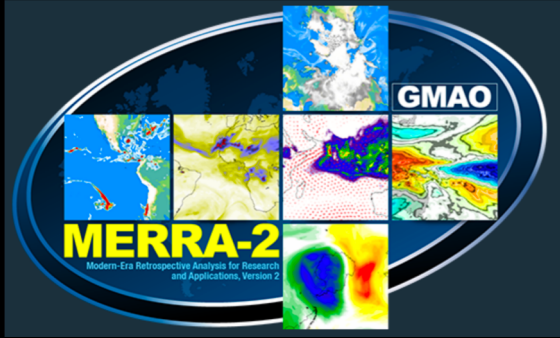


# POWER UP!

Making NASA Data Available for Energy Related Societal Benefits



# Where does the data come from?

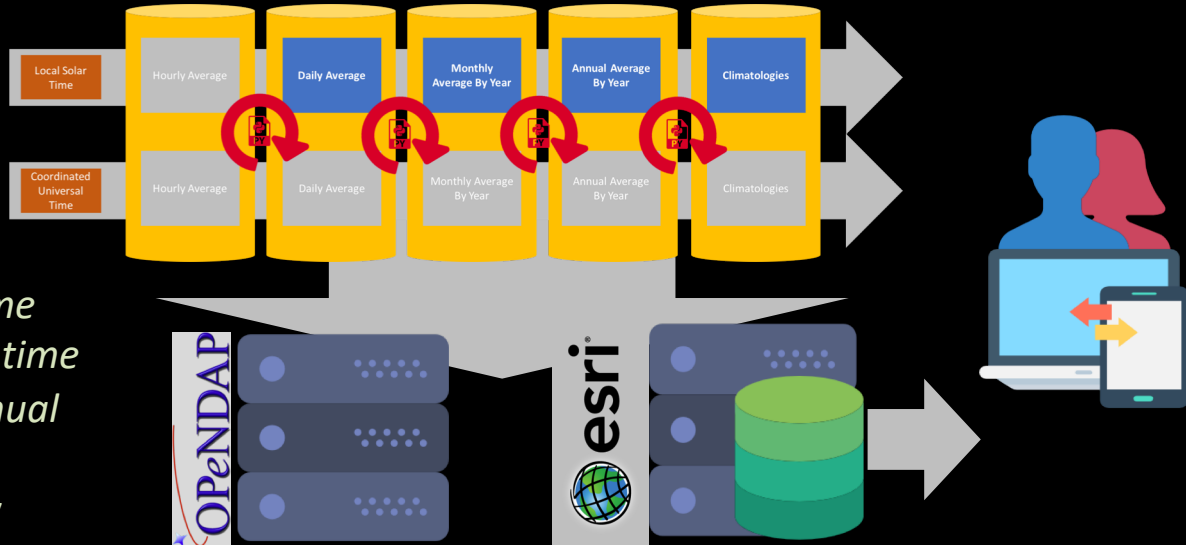
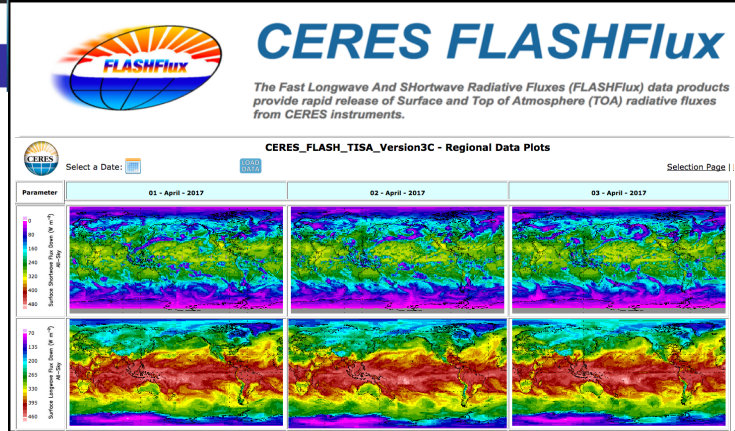
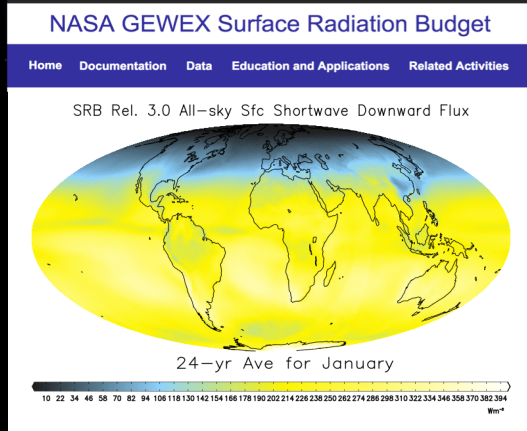


Surface meteorological data products from reanalysis

## Data Products . . .

- span July 1983 to near present time
- include daily, monthly and annual time series; long-term monthly and annual averages
- customized parameters for energy

## Surface solar data products from satellite analysis





# How do I start?

NASA Prediction Of Worldwide Energy Resources DATA ACCESS METHODOLOGY RESOURCES FAQ ABOUT CONTACT

## POWER Project Data Sets

Solar and meteorological data sets from NASA research for support of renewable energy, building energy efficiency and agricultural needs

Project supported by NASA Earth Science's Applied Sciences Program

Welcome former NASA SSE users!

- A message to SSE users ([SSE Decommission Announcement](#))
- View the POWER Data Access Viewer ([User Guide](#))
- How do I find my parameters of interest? ([SSE to POWER GIS map](#))

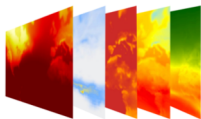
## Multiple Data Access Options



### Data Access Viewer

Responsive web mapping application providing data subsetting, charting, and visualization tools in an easy-to-use interface.

POWER DATA ACCESS VIEWER



### ArcGIS Image Services

GIS-Ready Time-Enabled ArcGIS Image Services for mapping, visualization, and spatial analysis.

POWER DATA ACCESS VIEWER



### POWER API Integration

Access the POWER data holdings through your own custom scripts and scalable applications.

POWER API DOCUMENTATION

**2. Select Parameters**

**1. Select App**

**3. Get Data!**

**Try Other Apps**

**Images**

# What are some examples of climatological averages?

Insolation Incident On A Horizontal Surface (kWh/m<sup>2</sup>/day)

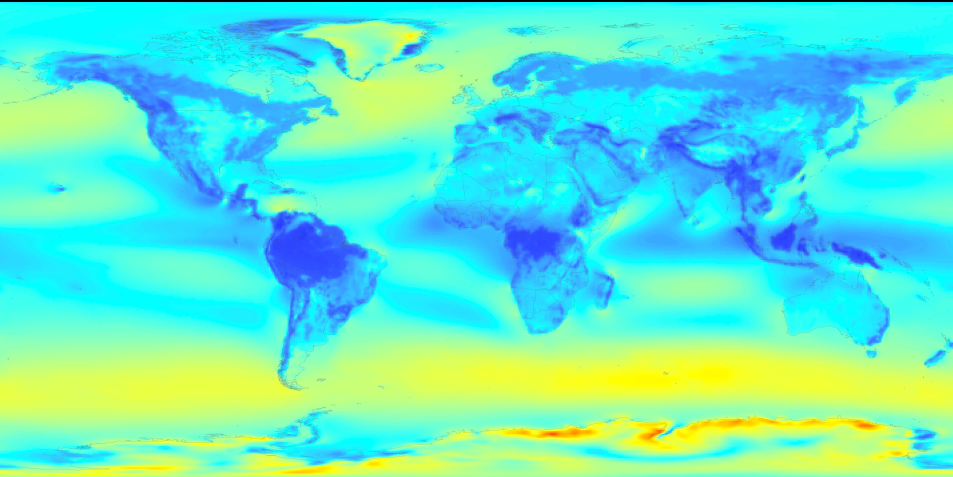
0 2.5 5 7.5 10

SRB/MERRA2  
0.5 x 0.5 Degree Climatologies  
Annual Slice of 1/1/1984 - 12/31/2013

Maximum Temperature at 2 Meters (°C)

-40 -20 0 20 40

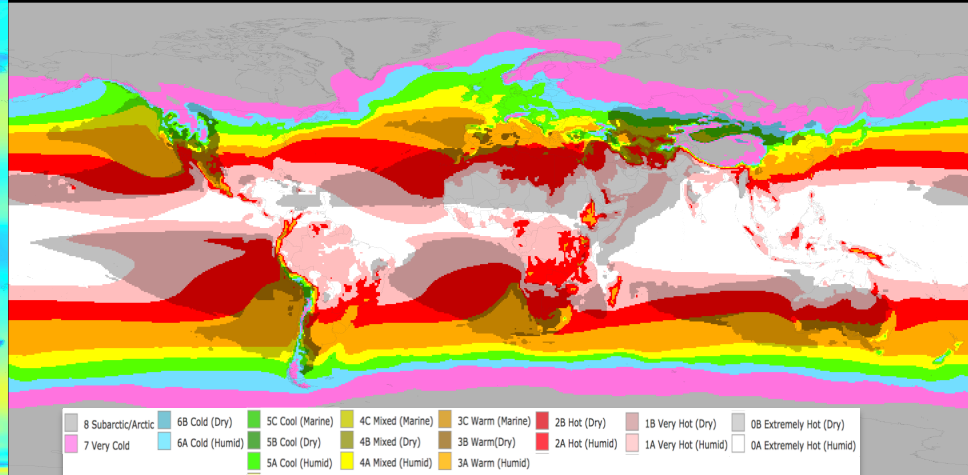
SRB/MERRA2  
0.5 x 0.5 Degree Climatologies  
Annual Slice of 1/1/1984 - 12/31/2013



Wind Speed at 50 Meters (m/s)

0 5 10 15 20

SRB/MERRA2  
0.5 x 0.5 Degree Climatologies  
Annual Slice of 1/1/1984 - 12/31/2013

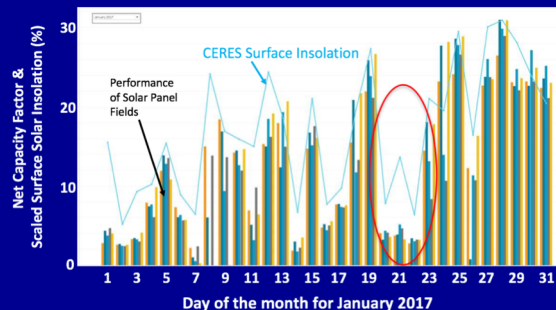


Thermal Moisture Zones

SRB/MERRA2  
0.5 x 0.5 Degree Climatologies  
Annual Slice of 1/1/1984 - 12/31/2013

# Who is using the site and why?

Use of CERES Data Products to Monitor the Performance of Solar Panel Fields in North Carolina

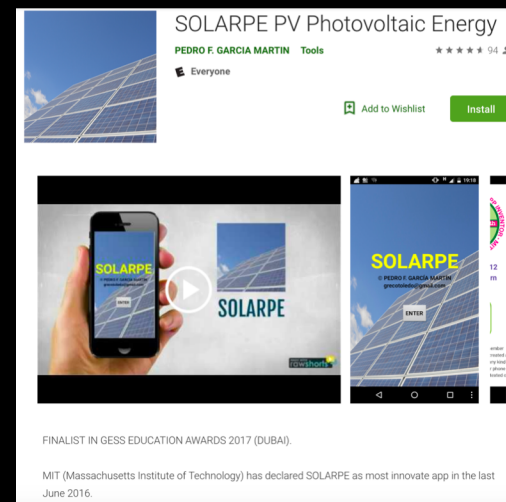


- **N.C./VA:** Solar consultants monitor solar field performance (First Customers Renewables)
- CA/WI/IN: Universities using for courses in agriculture (e.g., Stanford U.) and renewable energies (U. of Wisc, Purdue using RETScreen)
- LA: "I ... calculate solar arrays and battery banks needed in a given location for our solar powered chemical injection pump." CheckPoint Pumps & Systems®, LA
- OR: Solar data for remote locations. SunWize Power & Battery (HQ, Albany, multiple US locations)
- TX: Data ... for sizing Battery & PV systems. Scott Rayment, Voltmaster Electrical Contracting, Houston
- "POWER looks amazing and it's very useful, so thank you very much!" – Vanear Structural Technologies, Md, US

- **Spain:** Solar App (SOLARPE) for cell phone with 30,000 worldwide users. Pedro García Martín, IES Universidad Laboral of Toledo, Toledo
- Spain: Solar geometry and Solar Noon and Daylight Hours to design solar streetlights. Pilar Pérez Oliván, Asesora Luminotécnica, Navarra
- Canada: Assess solar generation system performance and report to site owners. Peter Mason, Radiant Technical Services, Ottawa.
- Argentina: Sizing and Pointing of Solar Panels in the new POWER data portal. Área Técnica, Goodenergy, Buenos Aires
- Belgium: "We've been using the NASA database for Nokia's Renewable Energy solutions dimensioning." Nokia, Antwerpen
- Peru: Provider of solar systems in Peru and uses the POWER data to check amount of sun at a specific point. Chavier E. Solano Isaya, Product Manager, Energía Solar y Automatización



The college of Engineering Building, U of Mich.



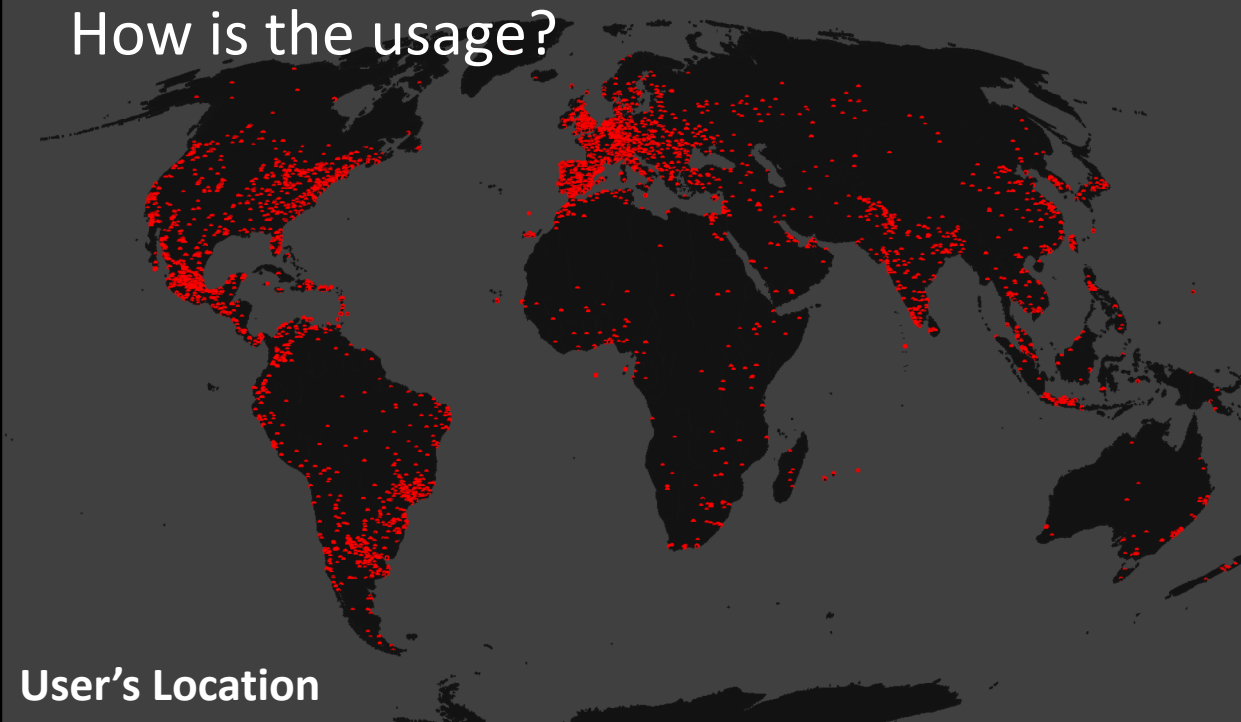
## POWER Partners with RETScreen for Clean energy technology projects feasibility and evaluation

- **Alaska:** U.S. Department of Agriculture Analyzes Wood Heating in Alaska with RETScreen
- **Massachusetts and Minnesota:** RETScreen used to developed renewable energy heating and cooling scenarios for policy incentive programs including solar hot water heating, biomass heat and advanced heat pump technologies
- **Michigan:** University of Michigan uses RETScreen to monitor building energy efficiency and greenhouse gas emission (now Auburn U.)
- **Hawaii:** Department of Education implementing program to use RETScreen at all education buildings/schools

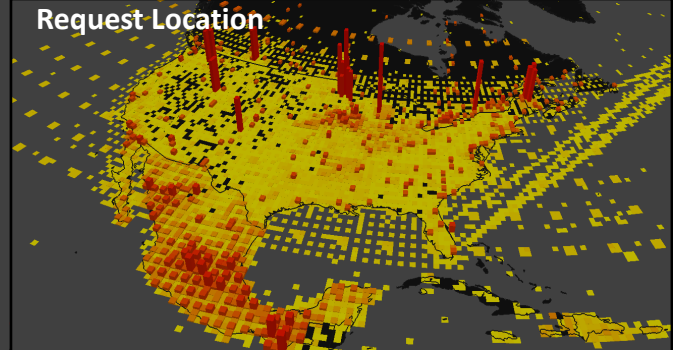


# How is the usage?

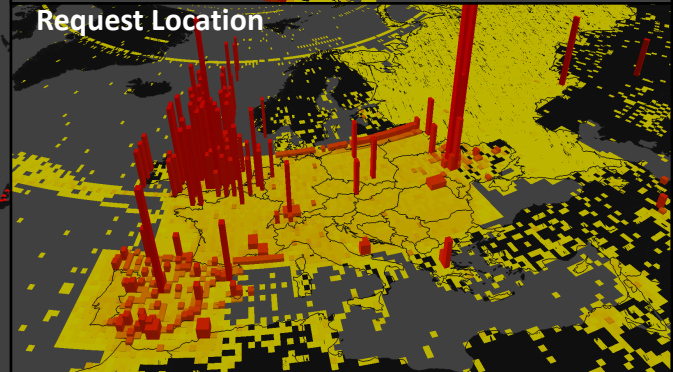
User's Location



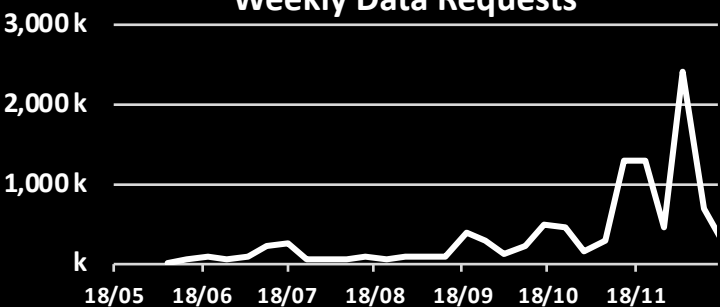
Request Location



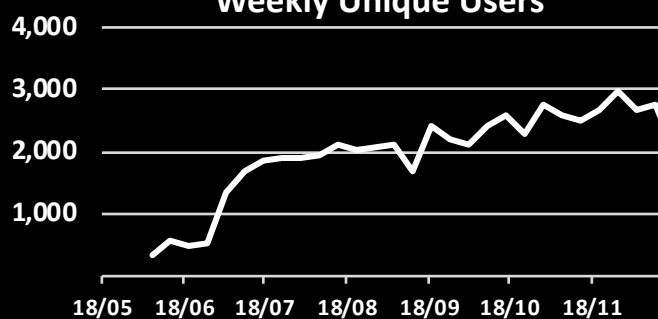
Request Location



Weekly Data Requests



Weekly Unique Users



Period: 5/2018 – 11/2018

Requests: 10,299,733

Unique Users: 44,256

Total Volume: 6.2 TB

# POWER UP!

<https://power.larc.nasa.gov>



THANKS!







